



Conference on Enterprise Information Systems / International Conference on Project Management
/ Conference on Health and Social Care Information Systems and Technologies, CENTERIS /
ProjMAN / HCist 2015 October 7-9, 2015

Project management on Multimedia Projects: preliminary results on communication, interaction and team work dynamics

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Abstract

Multimedia projects are a unique type of developing innovative products and services, with a distinctive set of team members, knowledge and methods. Studies around agile development, centered in software engineering projects, are not specifically oriented to some of its particularities. Nevertheless, it's possible to develop and manage a multimedia project using agile methodologies, although studies remain to ascertain if these projects can be ruled by some of these methods.

The purpose of this research is both to (i) analyze and understand agile development methodologies, instruments, tools and methods considering the particularities of multimedia projects development and to (ii) analyze data collected in a real development environment, observing practices and events of a specific project, confronted with existent methodologies, in order to gather information to design and propose an agile development support model. In this paper, some preliminary results of this on-going research are presented, mainly concerning 'communication', 'interaction' and 'team work dynamics'.

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Peer-review under responsibility of SciKA - Association for Promotion and Dissemination of Scientific Knowledge

Keywords: multimedia; project management; agile; communication; interaction; team work.

1. Introduction

The development of the information and communication society is creating new scenarios in which users are more

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motivated to use additional technological devices and multimedia apps. Creativity reaches new forms, in a synergy that allows a new type of access to information, more interactive, intuitive and sometimes unexpected. Multimedia – the combination of several media with the purpose of transmitting a message – arises thus as an attractive form of accessing and securing information and is the conceptual base of most of the apps we all use everyday. Before these innovating products are launched, they go through a development process, most of the times characterized by a creative and conceptualization initial phase, followed by the production, test and validation. Taking into account the amount of knowledge areas that can converge into a Multimedia Project and the amount of interdependent tasks performed by different team-members, a set of supporting methods, techniques and tools is required so that the project goals' may be reached in due time. Besides these methods, techniques and tools, that allow the control and monitoring of the tasks, it's also mandatory to consider the impact that team members' interactions can have on productivity. Agile development methodologies are seen as a possible answer to the current development teams' demands. Despite the multimedia industry growth, a recent concept with a remote genesis, research in agile development is mostly related with software development and engineering projects and not so closely with Multimedia Projects, although it is possible to find methodologies designed for software development that can be used in multimedia development like Extreme Programming [1] and Dynamic Systems Development Method (DSDM) [2]. However, the development of multimedia services and products have particularities that are beyond the typical characteristics of software engineering.

A multimedia project uses development technologies in the field of new digital media and is strongly characterized by the utilization of several formats, strong interaction component and interactivity promotion. These projects are distinguished from other projects in software engineering area as they assume creativity like as important as programming or specialization. The software tools used tend to be different from tools used in software area projects. Multimedia is a heterogeneous mix of manifold media with interactive nature, calling for a variety of development skills such as artistic and digital capabilities [3]. The heterogeneity of multimedia teams is the main dissemblance of developing a multimedia project, being therefore important that the agile methodologies to use in a Multimedia Project consider these specificities, along with others that might outstand.

In this paper we present the preliminary results of an on-going research which aims to analyze the 'communication', 'interaction' and 'team work' dynamics of a multimedia project, currently being developed at the Department of Communication and Art, University of Aveiro, Portugal. The goal of the project is the creation of a set of interactive services related to the experience of watching TV through a mobile application based on video/audio recognition. There are three partners on this project: the University of Aveiro - whose team-members share an office (four grantees oriented by three supervisors/team-leaders); Partner 1 – an international consultant enterprise, whose main role is centered on the business model, project management and results dissemination; and Partner 2 – a software small enterprise, whose role has to do with the programming of the mobile application.

Aiming to support the communication, interaction and team work dynamics of this project, through agile methodologies, and predicting the transferability of its results to projects with similar features, this research intends to contribute with solutions able to improve teamwork, goal achievement, tasks completion and compliance with deadlines, in order to improve the productivity of multimedia development teams. For that, the ongoing research is considering different dimensions to analyze, such as: project practice events; monitoring and control instrument; and, tools and methods. Finally, an analysis of agile techniques to be used in the project will also be conducted, aiming to propose and validate an agile development support model.

2. Project Management and Multimedia Teams

2.1. Projects and Project Management

For an organization, projects are construction blocks on strategies conception and execution. They contribute to create new and better products, services and organizational processes [4]. Weaver (2007) [5] defines a project as a temporary effort to achieve a wished profit. The ultimate goal of a project, in short or long term, includes return on investment (ROI), profit, feature, competition and market ability [6]. A project is, above all things, temporary, as it ends when the goals are totally achieved or when there is a clear acknowledgement that the initially proposed goals cannot be achieved. Thus, a project is developed in a market window as temporary as itself. The team is usually created

taking into account the project's purpose and needs, and it is rare to maintain its form beyond it. So, the ultimate purpose of a project is the creation of a product or service that is unique, in other words, the realization of something that was never done before [7].

Considering the particularities of the project's concept, the activity of managing them requires a complex application of knowledge, skills, tools and techniques. The main purpose of this activity is to reach or exceed the needs – identified requirements – and expectations - not identified requirements – of stakeholders, considering determinant factors like scope, time, costs and product or service quality [7].

Project Management is the tool to deal with new or complex activities, driving them to success and efficiency. With the associated techniques it is possible to make decisions in less time, simplifying critical project phases that are crucial to its success [6].

2.2. Agile Project Management

Flexibility appeared as the main concept of new challenges and opportunities in project management area, in a new economy scenario, mostly characterized by complex and uncertain projects and situations. Hierarchy ceased to be rigid and fixed and became collaborative, making local response flexible, enabling constant adjustments and dynamic responses to unforeseen problems. Simplicity, acceptance of change, focus on the next challenge, incrementing of change, value maximization, management with purpose, questions and actions, fast feedback to stakeholders, quality delivers and documentation creation based on value are practices associated with agile project management [8].

Agile methods are the answer to the problem of integrated change in the development process; their strategy is to reduce the risk of alterations introduced by combining team creative work with intense focus on final project goals [9]. The agile concept is associated with a less or almost none structured or defined methodology of development, but with its maturation it became a well-defined process with associated knowledge. These methodologies do not state what has to be done, instead they define axioms that require interpretation of each specific situation [10]. The implementation of agile methodologies requires self-discipline from every person-involved. A functional organization adjusts discipline and agility in a concordant way of its goals [11].

“Facilitating change is more effective than attempting to prevent it. Learn to trust in your ability to respond to unpredictable events; it's more important than trusting in your ability to plan for disaster” (p. 1) [12].

On agile projects, the requirement changes are as accepted as welcome, even if they came in the final phase of the process, and they are seen as a competitive advantage for the client. Instead of resisting to change, the agile approach strives to accommodate it, in an easy and efficient way and, at the same time, keeps in mind its consequences. This change accommodation promotes feedback cycles and implies regular deliveries with the less time window possible, allowing the entire team to evaluate and learn with the product development process. There is no set of initial requirements; instead, there is a high level vision of it, subject to frequent change. Despite the lack of requirement definition, the team interaction should promote the commitment with the client, his active participation and the joint assuming of responsibilities to the final product delivery. Thereby, a way to deal with the changes that arise from this interaction should be created [12].

“In a complex adaptive system, decentralized, independent individuals interact to create innovative, emergent results,” say Highsmith and Cockburn (2001 p.121) [9], summarizing the agile axioms in the Agile Manifesto. Processes, tools, documentation, contracts and plans are considered useful, but, when there's an impulse, there should be a clear and objective response. The interactions between individuals facilitate information sharing and change when necessary, minimizing documentation as much as possible. Working like this and using software that measures the results production speed and provides quick feedback, pays off and allows creating innovative and emergent results, fundamental nowadays, as current organizations are complex adaptive systems, with independent and decentralized individuals that interact in a self-organized way, ruled by a set of simple and generative rules. These rules are not inclusive but generative; they interact specifically when practiced by a team. Most methodologies provide inclusive rules about everything that can be done in every situation. In turn, agile methodologies offer generative rules: small sets of practices that can be adopted in every situation, that generate practices that are appropriated for every specific situation. Teams guided by inclusive rules are most likely to fail because they depend on someone that anticipates the situation conditions and the practices that should be used. In contrast, teams that follow generative rules depend on their creativity to find problem solutions. Therefore, creativity becomes the only way to manage complex problems

of projects development [13]. Problem resolution implies focus on understanding axioms, leaving them at the mercy of interpretation as to how they should be implemented in a particular situation [10].

Despite being ruled by some practical characteristics, agile development is, ultimately, about creating and answering change. What distinguishes it are not its practices but the recognition of people as the main project boosters, together with a focus on effectiveness and maneuverability, producing a new value and principals combination that defines an agile vision of the world [13].

2.3. Multimedia Projects

The goal of a multimedia project is to disclose specific information to a well-defined market segment using several technological means and enabling interactivity. These projects can be seen as different from others as creativity is seen as important as technical skills. Software tools used tend to be different from software engineering projects. Multimedia is a heterogenic mix of interactive media integration; a combination of ability variety focused on an efficient blend of artistic and computer skills and market segment vision. To develop these type of projects one must consider if the project theme supports several media and interactivity, the information and resources availability, the potentially interested market segment and former titles and publications about the issue [3].

Although the natural diversity that can be observed, the development of a multimedia project includes several phases with specified particularities: a Design phase that includes User Interface and User Experience Design, Graphic Design and textual content development; and the Development phase that includes plan definition and work strategy, determination of product viability, project goals outline, audience analysis, content formalization, requirements, techniques, costs and execution time. During the Production phase the most important is the study and development of the technical solutions along with the contents and interaction design to be used, the development of the functional prototype, trademark development and packaging, if applied. Implementation is the phase in multimedia development when the product is tested and its quality assessed, when changes are introduced and the documentation is finished. Lastly, the evaluation phase extends through all process and determinates its success, allowing the final result to achieve the proposed goals and features [14].

2.4. Mobile Application Development

Development for mobile devices is a relatively recent phenomenon that has increased with the popularity of smartphones [15] and tablets. Mobile applications are, most of the times, smaller and have fewer people designing and implementing them. Team members usually react well when presented with sets of practices that should rule their work; however, they rarely use every formal procedures presented. Therefore, the mobile app development is, sometimes, ruled by a lighter organization of development processes [16].

Nevertheless, in many aspects it is similar to software engineering. The common problems include hardware integration, security questions, performance, reliability and storage limits. However, mobile apps present requirements that are less common to find in software traditional apps: the interaction potential with other application like sensors, accelerometer, microphone and touch screen. In spite of the high number of mobile apps existent in the market, there is no formalization around the development processes associated with them. Knowledge is highly pragmatic including some orientations or code examples that can orient the developers [16].

3. Methodological process

The research presented in this paper is being developed in a real context of a multimedia project team highly characterized by the integration of multimedia developers. This project steams in an academic context but has a particular set of people and entities and institutions involved. Responsible for the development of an iTV mobile application there is a team of three grantees/scholarships students – one responsible for programing, other for UI/UX design and the last one responsible for research and testing. There are also three supervisors (professors who provide orientation and technical support) and two corporate partners (partner 1 is responsible for business and partner 2 is responsible for the technical implementation).

In line with the roadmap of this project, the ongoing research described in this paper includes a set of sequential sets with specific goals. The Preparation phase started with an exploratory observation process of the events and team practices; data was registered in a field note diary allowing us to understand some of the team's interaction dynamics. A startup interview with one of the project's mentors was also held and it allowed us to better understand the project's main goals and the role of every person and organization involved in the project. The diagnosis phase followed and included a state-of-the-art review on instruments and tools for projects monitoring and control as well as on the instruments currently being used in the project context.

The characterization of the project practices phase included data collection using an observation grid and systemization in an analytical data matrix. Data collected with this grid will be posteriorly complemented with an interview applied both to the team members and to the project manager.

The following phase is centered on designing a methodology to the agile support model proposal. This model will be validated in different refinement cycles using events observation and discussion with team members. By means of the results analysis, the last phase will enable the final proposal definition.

4. Preliminary Results

4.1. *Events and Practices of Projective Development*

The project that is being analyzed had, initially, four grantees/team members but, along the way, there were some team changes as one team member was added and another replaced. The core development team is now constituted by: a team member responsible for research, test and product evaluation; an UI/UX designer; two programmers that work in collaboration; and a product manager who joined the team in the middle of the process.

The project management methodologies initially applied was Partner 1 dependent, because this partner is the organization responsible for the project management. The team was ruled by a waterfall traditional methodology that requires a lot of documentation and bureaucracy. To validate a change, it was necessary to fill a lot of paperwork.

After some initial difficulties on tasks sign-off, the team leaders responsible for project management adopted an agile methodology. User stories were created to help define the main project phases and tasks. SCRUM [17], the adopted agile method, is being used allowing the definition of short timelines and frequent requirement changes. Its associated activities include Pendency, the organization of a requirements list or project features that provide business value to the client. At this stage, the project manager evaluates and defines priorities, if necessary. Sprints are work unities to satisfy a requirement in a static environment and a certain and small time period (usually 30 days). Meetings should be short, usually 15 minutes, and each participant should answer three questions: "What did I accomplish yesterday?", "What will I do tomorrow?" and "What obstacles are impeding my progress?" Finally, the Demo phase includes prototype delivery and features testing and assessing. SCRUM expects these phases to be repeated until the project is complete [18]. This method implies well-trained and specialized teams, capable of self-management, communication and decision-making. The teams in the organization work together and constantly focus on common interests [10].

After adopting this method, there were some changes on the team weekly dynamics: every Thursday the team sends to Partner 1 a progress report that reflects the tasks done by every team member during the previous week. Before each meeting starts, on Friday, one of the mentors/leaders assumes the role of spokesman and reviews with the team the questions that should be presented. During the meeting, relevant information is shared: the completed tasks are presented by each partner, as well as the tasks in progress and the obstacles and questions that are preventing the progress. After each meeting, every partner receives a meeting memo.

4.2. *Interaction Dynamics*

The following tables summarize the data collected during the observation of both "Projectual Practice Events" and "Meetings" and concerning four main dimensions: "Sharing and Interaction Events"; "Hierarchical Organization Events"; "Decision Making Events"; and "Monitoring and Control Events".

Table 1. Data Collected.

	Sharing and Interaction Events	Hierarchical Organization Events	Decision Making Events	Monitoring and Control Events	Total
Projectual Practice Events	25	5	0	1	31
Meetings	1	15	10	30	56
Total	26	20	10	31	87

Table 2. Sharing and Interaction Events.

Subject	Motive	Source	Medium	
Personal	0/26	Help/Advise/Alert 4/26	One-to-one 14/26	Cloud 1/26
Project	26/26	Task distribution 2/26	One-to-many 5/26	Skype 1/26
		Inform/Question 14/26	Many-to-many 6/26	Email 4/26
		Opine/Comment 5/26		Oral 20/26

Table 3. Hierarchical Organization Events.

Delegation	Roles	Pro-activity	Medium	
Unilateral – Management	8/20	Equality 8/20	Team Members 5/20	Cloud 0/20
Unilateral – Team Member	5/20	Distinction 3/20	Partners 9/20	Skype 16/20
Shared by some	5/20	Repeat 6/20	Supervisors 7/20	Email 0/20
Shared by all	0/20	Function Variation 0/20		Oral 4/20

Table 4. Decision Making Events.

Delegation	Decision Type	Agreement Level	Medium	
Unilateral – Management	2/10	Conceptual 2/10	Agree 5/20	Cloud 0/10
Unilateral – Team Member	0/10	Design 4/10	Disagree 9/20	Skype 10/10
Shared by some	7/10	Technical 2/10		Email 0/10
Shared by all	1/10	Other 4/10		Oral 0/10

Table 5. Monitoring and Control Events.

Time	Tasks	Medium	
Deadline Anticipation	2/10	Dependence 13/31	Cloud 0/31
Delay	0/10	Execution % 11/31	Skype 29/31
Additional Goals	7/10	Sign-Off 11/31	Email 1/31
			Oral 1/31

From this preliminary data it is possible to present already some conclusions on teamwork and interaction dynamics. Within Aveiro’s University team members, interaction is mostly synchronous and oral, as they share the same workspace. The communication is asynchronous, by email, on a regular basis with the supervisors, for orientation and validation proposes, and punctually with the partners, when the tasks are dependent and when there are doubts blocking the project progress.

Personal interactions between team members (at Aveiro University) are mostly based on project issue. 14/26 of them are to question or inform about a certain matter. Also 14/26 are one-to-many interactions and occur when they have a specific motive and an expected answer from only one of the team members, since each one has a very specific set of responsibilities. Many-to-many and one-to-many interactions, likely to share opinion or comments, are rare, only 12/26, and happen mostly about general and less technical matters, like conceptualization. Interactions with the purpose of task distribution are only 2/26, considering the hierarchical organization of the project participants.

Sharing of electronic resources is done by using the cloud, which allows file storage and synchronization, so that those files may be available, at any time, for each of the team's members without disturbing the development of tasks.

Hierarchical organization is most clear in meetings, when at least one of each partner's members is present. Delegation is mostly done unilaterally, starting in a hierarchical superior to team members. As the roles of each member are well defined since the project beginning, the existence of roles variations is insignificant.

Decision-making events are usually synchronous on week meetings or asynchronous, via email, when the issues are urgent or are blocking some task elapses. The decision-making power is, 7/10 of times, shared by some members, usually hierarchic superiors, of each partner, or by everyone, in 7/10 of times, when there is opinion sharing among team members. About 4/10 of the decisions are conceptual, with less incidence on technical and UI/UX decisions. Consensus is usually unanimous and when there is discord, opinions and research data that help to reach an agreement are shared.

In what concerns observation of monitoring and control events, it is possible to verify that 12/31 are related to delays or goal limitations. These types of episodes are regularly centered on task dependence and sign-off. There is a small incidence on tasks execution percentage registration; as all team members acknowledge the clear task division and different responsibilities between them, the "state of the tasks" has proven to be an effective strategy: to-do, in progress or done.

4.3. Instruments and tools of monitoring and control

Besides the above-mentioned Observation phase, a study of the existing tools that support project management has also been conducted. There are several free and paid tools available online, browser-based or desktop-based and multiplatform, which allow access to information on tablets or smartphones. Their features vary, but most of them allow: visual maps and idea sharing, real time synchronization, task temporal organization, sign-off and task execution percentage, social network characteristics, conversation and file sharing, sync with external resources like Google Drive and Dropbox and even report emission tools. Our analysis, summarized in Table 6, allowed to create a matrix that illustrates which tools are more "Multimedia oriented" and which ones are more "Agile Oriented".

Table 6. Project monitoring and control tools.

	Agile Oriented (t)	Not Agile Oriented (t)
Multimedia Oriented		Layer Vault; Notism; View Flux;
Not Multimedia Oriented	Open Project; Jira Agile	Casual; Crowdbase; Function Fox; Gantt Project; Liquid Planner; Mural.ly; Wrike; Nozbe; Paymo; Podio; Smartsheet; Team Gantt; Wiggio;

After analyzing all the tools, it was possible to categorize them according to its orientation towards agile principles (Table 1). Alongside with this categorization, we found that, despite the fact that there are existing tools that present approaches that are useful to agile project management, none of them is directed to multimedia development particularities. Teams' heterogeneity at task and knowledge level, a characteristic of this area, becomes a determinant factor in the management activity, and, therefore, it may be necessary to adapt the project management procedure.

Focusing on the analysis of these tools in the project being observed, it's important to verify that, at the beginning of the project, Partner 1, responsible for the project management, systematized sprints and tasks on an excel sheet, to guide everyone on the project elapse. The only tool used, for information security matters, was Knowledge Tree, a restrict access platform with assigned login, that allows document upload and download.

When the project was already moving forward, on beta version development, the project management responsible proposed the team to adopt an agile development support tool. The chosen one, Jira Agile, is a desktop tool, paid, whose principle is that agile development is not only for software development teams, but also for every team and every knowledge area. Partner 1 transposed all information to Jira Agile: sprints, user cases, associated tasks, dependencies and sign-off. This tool allows to easily identify active sprints, tasks and its state – to-do, in progress and done – and categorize tasks with filters. When a user case has every task as done, it is designated as concluded.

5. Conclusions

Highsmith (2004) [19] points as the main advantages of the agile development the continuous innovation – to deliver requirements proposed by the client –, the product adaptability – to reach future requirements for the client –, the improvement in market time – to answer market windows and improve ROI –, and trustworthy results – to support the business growth and profit. This kind of approach encourages innovation and creativity, promoting a bureaucracy reduction. Self-discipline development has a positive impact in results production and team development. Flexibility and close personal interactions allow adding value to the client and delivering exactly what he wants.

The dynamics of personal interaction and its repetitive nature, where every team member has the same opportunity to share and debate opinions, gives every member the conditions for understanding the project's vision. Agile teams, namely in multimedia projects, tend to be a heterogeneous organization where there two people usually don't share the same responsibilities in the development process. In these cases, the stronger abilities of every team member are highlighted. Each one's capabilities are fixed but, and considering the agile principles, may be varied, if necessary, adapting to possible scenery changes. Sharing is promoted and everyone's opinion and participation are valued. Team members debate major decisions on an open approach, so that everyone may feel part of the process, building a collective harmony. On the other hand, specific decisions, concerning particular tasks are discussed only by some members to make the process faster and more efficient [20].

Based on the Observation Phase already conducted and also on the Instruments and Tools analysis performed, we believe that the project that is being studied in this research is evolving to an interesting scenario clearly characterized by a management model clearly influenced by the agile principles. This new approach is of most importance, considering that we are aiming to analyze 'communication', 'interaction' and 'team work dynamics', core dimensions of the agile methodologies. Moreover, it will be particularly relevant to understand how these three dimensions analysis' can contribute to design and propose an agile model, adapted to the specificities of Multimedia Projects.

References

- [1] Wells, D. *Extreme Programming: A gentle introduction*. (2013).
- [2] DSDM Consortium. *Dynamic Systems Development Method*. at <<http://www.dsdm.org>>
- [3] Multimedia Systems. *Multimedia Project*. 1–5.
- [4] Cleland, D. I. *Field Guide to PM*. (2004).
- [5] Weaver, P. *A Brief History Of Project Management*. (2007).
- [6] Munns, A. & Bjeirmi, B. The role of project management in achieving project success. *Int. J. Proj. Manag.* 14, 81–87 (1996).
- [7] PMI. *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*. Management 1, (2008).
- [8] Fernandez, D. J. & Fernandez, J. D. AGILE PROJECT MANAGEMENT - AGLISM VERSUS TRADITIONAL APPROACHES. *J. Comput. Inf. Syst.* 10–18 (2009).
- [9] Cockburn, A. & Highsmith, J. *Agile Software Development*. (2001).
- [10] Cobb, C. G. *Making Sense of Agile Project Management: Balancing Control and Agility*. *Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki* (John Wiley & Sons, Inc., 2011). at <<http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:No+Title#0>>
- [11] Boehm, B. & Turner, R. Balancing Agility and Discipline: A Guide for the Perplexed. *Journal of Product Innovation Management* 22, (2003).
- [12] Fowler, M. & Highsmith, J. *The Agile Manifesto*. (2001).
- [13] Highsmith, J. & Cockburn, A. *Agile Software Development : The Business of Innovation*. *Software Management* 120–122 (2001).
- [14] *Staylor-Made Communications Inc. Basic Principles of Multimedia*. (2002).
- [15] Joorabchi, M. E., Mesbah, A. & Kruchten, P. Real challenges in mobile app development. in *International Symposium on Empirical Software Engineering and Measurement* 15–24 (2013). doi:10.1109/ESEM.2013.9
- [16] Wasserman, A. I. Software engineering issues for mobile application development. in *Proceedings of the FSE/SDP workshop on Future of software engineering research - FoSER '10* 397 (2010). doi:10.1145/1882362.1882443
- [17] Schwaber, K. *Agile Project Management with Scrum*. (2004).
- [18] Tomás, M. R. S. Métodos Ágeis: características, pontos fortes e fracos e possibilidades de aplicação. *IET Work. Pap. Ser.* (2009).
- [19] Highsmith, J. *Agile Project Management: Creating Innovative Products*. *Management* 69, (2004).
- [20] Sousa, A. F. M. De & Almeida, A. M. P. Agile Management of Multimedia Projects: a Case Study. *Int. J. Inf. Process. Manag.* 2, 100–114 (2011).